

## SPECIFICATION

### TITLE

Vertical Vortex or Laminar Flow Interactive Biomedia Water Treatment Device  
or Vertical Vortex

### REFERENCE

Provisional Patent Application, Application Number 60/040,690; Filing Date 3/13/97; Docket Number W/C 367552

### SUMMARY OF INVENTION

A process for treating water containing organic and/or inorganic matter. Consisting of inoculating an input flow with prescribed micro-organisms or mixtures thereof in a chamber containing a media designed to effect separation through gravity and coalescence in flow induced vortices. The media additionally serves to provide hydromechanically enhanced substance retention and surface area, upon which, the introduced micro-organisms form a biofilm for the purpose of matter retention and/or decomposition. The media may be placed in a tangential or parallel orientation to the flow of input water.

### DESCRIPTION

An interactive biomedia constructed from plastic or other application suitable material with an eight vaned inner structure and a finned cylindrical outer structure, both of varying length, depending upon requirements is placed in containments of varying configuration as required.

Fluid flow tangential to the vane structure induces vortices to form in the fluid. The low pressure area in the center of the vortices facilitates particle to particle collision coalescence and greater separation efficiency of suspended matter with buoyant material being retained in the upper cylindrical portion of the media and settleable material collecting at the base. Retained organic material can then be decomposed by biofilm formed on the surface of the media.